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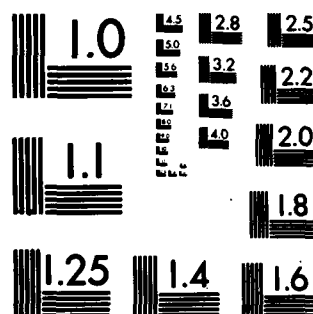
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DoD USE OF
CIVILIAN TECHNICIANS,

11 July 1980

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PREFACE

The Office of the Secretary of Defense has expressed concern over the extent of civilian technical assistance--advice, instruction, and training--for the military personnel who install, operate, and maintain our front-line weapon systems. The adequacy of DoD policy governing the use of that assistance has also been questioned. These concerns have arisen because of the increasing complexity of weapon systems entering today's inventory and disturbing trends associated with the composition of the military work force supporting those systems.

In response to a request from the Assistant Secretary of Defense (Manpower, Reserve Affairs and Logistics), LMI examined the dependence that the Military Departments have placed upon civilian technical assistance and the degree to which current technical assistance policy remains adequate. Several deficiencies, both in the policy itself and its implementation by the Military Departments, were observed, and corrective actions are recommended.

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EXECUTIVE SUMMARY

The DoD operating forces rely heavily upon civilians for technical assistance--advice, instruction, and training of military personnel in the installation, operation, and maintenance of weapon systems and equipment, plus liaison between users and equipment manufacturers. Approximately 4,500 in-house and contractor civilians provide technical assistance to operating forces at CONUS and overseas bases and aboard naval ships. The Military Departments regard their work as indispensable in sustaining the current material readiness of front-line weapon systems like the F-14 and F-15 aircraft and the HAWK missile. The estimated level of such support is likely to be conservative.

The Office of the Secretary of Defense (OSD) has questioned the adequacy of current policy governing the use of civilian technical assistance. Continuing reliance on civilian technicians means that maintenance skills are not being successfully transferred from the producers to the ultimate users of the systems. Should the civilians leave their jobs in wartime or other periods of heightened tension, the material readiness of key weapon systems would be jeopardized.

DoD Directive 1130.2, "Management and Control of Engineering and Technical Services," requires the Military Departments to achieve self-sufficiency in maintaining and operating new systems as early as possible, and limits the use of contract field services (CFS) to 12 months thereafter. It prohibits the use of CFS unless it is militarily necessary and in-house support is impractical. It further requires the Military Departments to designate coordinating offices for technical services at the headquarters level.

The current policy assumes that the military can achieve self-sufficiency in direct maintenance within an arbitrary time period. In fact, such self-sufficiency has not yet been achieved. Almost one-third of the Air Force technical assistance funding and over half of the Navy aviation technical assistance funding go to direct support of aircraft introduced during, or prior to, the Vietnam conflict.

Furthermore, the existing policy imposes inconsistent restrictions on the use of technical assistance. The 12-month restriction applies only to CFS and not to field service representatives (FSR), who are also contractor personnel, nor to in-house civilians, thus inserting a bias against the use of CFS. This restriction may induce some DoD components to evade it by procuring FSRs instead. Components complying with the restriction must follow special waiver procedures to procure additional CFS even when there are no in-house capabilities, as for certain subsystems of the Army HAWK missile and the AN/TSQ-73 Missile Minder. Also, the policy permits CFS use only through the 12-month period after attaining self-sufficiency, but why should technical assistance of any kind be needed once self-sufficiency is attained?

Finally, the current policy does not address the problem of providing and assuring critical civilian technical assistance in wartime. If these civilians should choose not to work in crises, the effect on weapon system material readiness could be devastating. Naval air commanders assert that even a shortfall in current procurement of aviation technical assistance would jeopardize flight safety, impair weapon system capability, degrade material readiness, and adversely affect mission objectives.

In numerous past critical situations, civilians have distinguished themselves by performing vital technical assistance in direct support of combat units. In a few cases, however, such as in South Korea in the wake of the

1976 Demilitarized Zone "tree-cutting" incident, they have suddenly abandoned their assignments. There is uncertainty, therefore, about the continued presence of civilians in their roles in wartime. Furthermore, the Military Departments do not have statutory authority to compel them to perform any function in direct support of forces engaged in conflict. It is only prudent to seek ways to reduce the risk of relying on an uncertain element of critical support.

Development of major alternatives to DoDD 1130.2 is premature at this time because data on the Military Departments' compliance with the Directive are incomplete, and many of its provisions have not yet been implemented. LMI therefore recommends that OSD:

1. Revise DoDD 1130.2 to:
 - recognize organic self-sufficiency in maintenance as a goal, but with no arbitrary time limit on the use of CFS
 - authorize the use of civilian technical assistance whenever needed to transfer skills from producers to users
 - eliminate the distinction between CFS and FSR personnel.
2. Require the Military Departments to submit (on a one-time basis) summaries of the latest annual reviews required by DoDD 1130.2 to uncover shortcomings in compliance with current policy.
3. Actively support further in-house effort to solve the problem of civilian technician availability in wartime.

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1. OVERVIEW OF CIVILIAN TECHNICAL ASSISTANCE

CURRENT POLICY

DoD Directive 1130.2, "Management and Control of Engineering and Technical Services," states DoD policy governing the Military Departments' use of civilian technical assistance. Engineering and Technical Services (ETS) include advice, instruction, and training in the installation, operation, and maintenance of weapon systems, equipment, and components used by the military. Those services are performed by:

- DoD ETS Specialists, consisting of technically qualified military and civilian personnel
- Contractor ETS (or CETS), consisting of:
 - Contract Plant Services (CPS) performed in manufacturers' facilities to provide the military with a nucleus of senior maintenance personnel with first-hand technical knowledge of new or modified weapon systems and equipment
 - Contract Field Services (CFS) performed on-site by defense contractors to continue the transfer of technical skills at the organizational level when needed to extend the training capability of military personnel
 - Field Service Representatives (FSR) who provide a liaison or advisory service between the military user and the equipment manufacturer.

Throughout this report, the term technical assistance will be used to cover all of the above categories.

The primary objective of DoD Directive 1130.2 is to promote the Military Departments' self-sufficiency in operating and maintaining weapon systems. A secondary objective is to prohibit contract technicians from being used in personal service capacities.

The salient provisions of DoD Directive 1130.2 are as follows:

- The Military Departments are required to achieve self-sufficiency as early as possible in maintaining and operating new equipment and systems.

- CFS are permitted only when militarily necessary and when in-house support is impractical, and then only for 12 months after self-sufficiency in the use of new equipment or systems.
- CFS must be acquired through separate contracts or as an identifiable line item within an acquisition contract, and must show man-months and cost of services.
- The Military Departments must review annually the requirements for, and the use of, civilian technical assistance.
- Each Military Department must assign a single office at the headquarters level with the responsibility for coordination of, and cognizance over, all such technical services.
- CFS personnel may not be supervised or directed by Government officials, may not be placed in a supervisory position over military personnel, and may not be used to avoid manpower ceilings.

LMI concentrated on the technical assistance that military personnel could conceivably provide in direct support of U.S. combat and combat support activities. Hence, we did not address:

- services in support of the headquarters level of the Military Departments
- support to industrial-type activities, such as maintenance depots and naval shipyards
- support not involving advice, instruction, training, or liaison functions
- support to foreign nations funded under the Military Assistance Program.

EXTENT OF RELIANCE

The Military Departments report that about 4,500 in-house and contractor civilians provide technical assistance in CONUS and at overseas bases and aboard naval ships. Table 1-1 displays the technical assistance and funding levels reported for each Department, distinguished by in-house and contractor civilians. Table 1-2 breaks out the total manning within each Department by major weapon system category.

TABLE 1-1. CIVILIAN TECHNICAL ASSISTANCE LEVELS
(Funding in \$000s)

Department	In-House		Contractor		Total	
	Funding	Man-Years	Funding	Man-Years	Funding	Man-Years
Army	\$29,300	1,039	\$ 4,000	40	\$ 33,300	1,079
Air Force	10,594	512	21,424	369	32,018	881
Navy	49,929	1,312	69,285	1,230	119,214	2,540
Total	\$89,823	2,863	\$94,709	1,639	\$184,532	4,500

TABLE 1-2. CIVILIAN TECHNICAL ASSISTANCE BY WEAPON CATEGORY

Department	Weapon Category	Man-Years		
		In-House	Contractor	Total
Army	Electronics	172	—	172
	Missiles	109	40	149
	Aircraft	124	—	124
	Vehicles	100	—	100
	Armaments	74	—	74
	All Others	460	—	460
	Total	1,039	40	1,079
Air Force	Aircraft	265	278	543
	- Fighter	111	178	289
	- Transport	57	36	93
	- Bomber	62	16	78
	- Attack	23	28	51
	- Early Warning	12	20	32
	All Others	247	91	338
	Total	512	369	881
Navy	Aircraft	367	892	1,259
	- Fighters	91	228	319
	- ASW	109	236	345
	- Attack/Surv.	126	306	432
	- Rotary	41	122	163
	Ships	824	69	893
	Electronics	—	48	48
	FBM System	—	42	42
	All Others	119	179	298
	Total	1,310	1,230	2,540

These data show the Navy using significantly more civilian technical assistance than the other Departments, 2,540 compared to 1,079 for the Army and 881 for the Air Force. The Navy is also paying almost \$47,000 per technical assistance manager, significantly more than the Army (\$31,000) and

the Air Force (\$36,000). However, both the reported levels of technical assistance and the associated costs are suspect. The flexibility provided the Military Departments in defining, costing, and reporting technical assistance offers many opportunities for critical and costly services to be routinely overlooked.

NEED FOR TECHNICAL ASSISTANCE

Civilian technical assistance covers a variety of services, including:

- formal classroom training on operation and maintenance of weapon systems and on general technical subjects
- informal instruction on maintenance techniques
- on-the-job training (OJT) in diagnosing and repairing specific maintenance problems
- up-to-date technical information from the equipment manufacturer
- liaison to expedite material support.

At both the headquarters and operating force levels, these services are perceived as essential, even indispensable, to sustain current readiness levels of major weapon systems. (Some systems which are highly dependent upon civilian technicians include the F-14 and F-15 aircraft and the HAWK missile.) Moreover, this assistance is essential throughout the system's life, not just for initial self-sufficiency. The reasons why include the increasing maintenance requirements of modern weapon systems and equipment, frequent modifications, rapid turnover of military maintenance personnel, and the decreasing quality of military maintenance training programs.

Military maintenance skills have not kept pace with the technical skills required to maintain modern weapon systems at satisfactory readiness levels. The Military Departments have traced the decline to three factors:

- They are unable to attract enough intelligent and trainable recruits.
- They have insufficient funds and time to provide adequate technical training to those recruits they do attract.

- They cannot offer adequate incentives to retain the limited number of trained and experienced military technicians currently serving.

The loss of experienced personnel is doubly damaging, as most of them fill both supervisory and technical roles, and their departure strongly influences subordinates to do likewise. The Military Departments are then left with only one alternative--to hire civilians to fill the gap.

2. CIVILIAN TECHNICIANS IN THE MILITARY DEPARTMENTS

ARMY

The Army provides technical assistance to both active and reserve components through the Logistics Assistance Program (LAP) and Maintenance Assistance and Instruction Teams (MAITs). There are 695 civilians in the LAP and 384 in the MAITs. Army program managers and Materiel Readiness Commands have also instituted various informal technical assistance programs, but the level of these efforts is much less than either the LAP or the MAITs.

The Logistics Assistance Program

Overview of Policies. Staffed with both Department of Army Civilians (DACs) and contractors, the LAP provides technical assistance to all the Army's major commands and to the Army National Guard and Reserve. At any given time, approximately one-half of the LAP personnel are working overseas, while the other half are in CONUS, either performing technical assistance or undergoing training on weapon systems.

Army Regulation 700-4 places overall responsibility for developing and monitoring the LAP with the Deputy Chief of Staff for Logistics (DCSLOG). Actual management responsibilities are assigned to the Army Materiel Development and Readiness Command (DARCOM). To coordinate LAP activities, DARCOM has established logistics assistance offices (LAOs) in Europe, Hawaii, Korea, and CONUS. The CONUS offices serve both the active Army, the National Guard, and the Reserve. The Materiel Readiness Commands (MRCs)--the Armaments Readiness Command (ARRCOM), the Communications and Electronics Readiness Command (CERCOM), the Communications and Surveillance Logistics Agency (CSLA), the Missile Readiness Command (MICOM), the Tank and Automotive Readiness

Command (TARCOM), and the Troop Support and Aviation Readiness Command (TSARCOM)--manage the technical assistance effort for specific weapon systems. Each MRC is responsible for developing and maintaining a pool of technicians trained in the specific MRC area, with DARCOM exercising overall coordination.

An MRC may contract for technical assistance for a period of up to a year. Extensions must be approved by DCSLOG and the Assistant Secretary of the Army for Installations, Logistics, and Financial Management. This procedure is required for contracts involving not only CFS, but also FSR and maintenance services.

In monitoring the program and planning for its future requirements, the Army requires regular reports of LAP activities. Quarterly reports detailing the deployments of LAP personnel are submitted to DARCOM, and twice a year each MRC submits an executive digest of its activities to DCSLOG.

Technical Assistance Levels. The LAP consists of two components, the DARCOM-controlled LAOs and the MRC technicians. The LAOs are staffed by both military and civilian personnel called Logistics Assistance Officers, and the MRC component is staffed entirely by civilians. Some of the MCR civilians specialize in supply problems, and are therefore known as Field Supply Technicians (FSTs). The majority, however, are DAC maintenance specialists, called Field Maintenance Technicians (FMTs); a small fraction of the FMTs are contractors.

The LAOs are responsible for field management and administration of the MRC technicians assigned to the LAO's geographical or functional area. For example, the Eighth U.S. Army LAO controls all FMTs assigned in South Korea, while the LAO at Fort Knox controls all FMTs assigned to Army Training and Doctrine Command units in Kentucky, Michigan, Indiana, and Ohio. MRC data and the DARCOM report for the fourth quarter of FY 79 show a total work force

of 695 civilians, consisting of 64 LAOs, 562 in-house FMTs, 29 in-house FSTs, and 40 contractor FMTs. Estimated funding for DACs is \$16 million in FY 80, at an average cost of \$24,400 per technician (salaries only); estimated contractor funding is \$4 million in FY 80, at an average cost of \$80,000 per technician.

LAP civilians are deployed on a permanent change of station (PCS) basis. CONUS technicians may be sent overseas for temporary duty (TDY) to handle emergencies or to assist deployed technicians when their workload becomes too burdensome. The actual PCS deployments are presented in Table 2-1, which breaks out civilian personnel by readiness command and by major command regions. Figures for TDY deployments were not available, but they are believed to be infrequent and of brief duration.

TABLE 2-1. LAP TECHNICAL ASSISTANCE LEVELS
(4th Quarter, FY 79)

MRC	Major Command/Area							Total
	Forces Command	Training and Doctrine Command	Army Communications Command	National Guard	U.S. Forces Europe	U.S. Forces Korea	U.S. Forces Pacific	
DARCOM	26	11	2	0	18	6	1	64
ARRCOM	22	10	0	0	34	6	2	74
CERCOM	42	13	22	15	56	19	5	172
CSLA	0	0	1	0	6	2	0	9
MICOM	25	19	0	0	91	15	2	152
TARCOM	33	18	2	0	36	7	4	100
TSARCOM	47	10	2	11	35	15	4	124
TOTAL	195	81	29	26	276	70	18	695

The technicians in the LAP are, for the most part, highly qualified. They average 15 years of experience in their technical fields, and many have engineering degrees. Most are in GS grades 11 through 13. They are all trained on the equipment that their MRCs support, with training periods as

long as 2 years. On the negative side, however, the average age of a LAP technician is 48, which suggests that many are eligible for retirement.

Concepts of Employment. The FMT's primary role is to advise enlisted maintenance personnel and provide liaison between the MRCs (or, in the case of contractor FMTs, the manufacturer) and the operating forces. The advisory tasks include clarifying instructions in technical manuals, explaining proper use of various instruments and test equipments, providing tips on diagnosing faults in complex equipments, and pointing out ways to expedite the flow of spare parts through the Army supply system. The FMT's liaison tasks include distributing technical information from the MRCs to the field, contacting MRC headquarters experts for assistance on maintenance problems beyond the FMT's capability, and providing feedback to the MRCs on the adequacy of weapon system design, operating and maintenance procedures, and technical manuals. In peacetime, this advisory and liaison role appears to occupy at least 50 percent of a typical FMT's time.

The FMT's second most significant peacetime role is training enlisted technicians. That training usually consists of lectures to small groups in the field, and often dwells on fundamental subjects such as basic electronics or the functions of the equipment that the trainees are expected to maintain--subjects which should have been learned in Advanced Individual Training. In addition to these advisory, liaison, and training tasks, FMTs provide maintenance assistance, particularly in the area of fault-diagnosis and troubleshooting, and perform a variety of other tasks on behalf of their MRCs.

The FMTs possess varying degrees of weapon system expertise. The TARCOM and ARRCOM FMTs are primarily generalists, whereas CERCOM, CSLA, MICOM, and TSARCOM FMTs are specialists, who may spend their whole FMT careers in

support of only one weapon system. The specialties or weapon system assignments of the CERCOM, MICOM, and TSARCOM FMTs are presented in Tables 2-2, 2-3, and 2-4, respectively. CSLA's specialties were omitted because of the small size of its FMT work force.

TABLE 2-2. CERCOM LEVELS BY SPECIALTY
(4th Quarter, FY 79)

MRC	Major Command/Area							Total
	Forces Command	Training and Doctrine Command	Army Communications Command	National Guard	U.S. Forces Europe	U.S. Forces Korea	U.S. Forces Pacific	
Avionics	11	3	3	4	12	6	1	40
Comms.	14	7	14	8	25	6	1	75
ADP	5	2	3	1	5	1	1	18
STANO ^a	9	1	1	2	8	3	1	25
TOTAL	39	13	21	15	50	16	4	158

^aSurveillance Target Acquisition and Night Observation.

TABLE 2-3. MICOM FMT LEVELS BY MAJOR WEAPON SYSTEM
(4th Quarter, FY 79)

System	Major Command							Total
	Forces Command	Training and Doctrine Command	Army Communications Command	National Guard	U.S. Forces Europe	U.S. Forces Korea	U.S. Forces Pacific	
LCSS	9	3	0	0	11	2	1	26
HERCULES	0	1	0	0	5	0	0	6
HAWK	3	6	0	0	34 ^a	11 ^b	0	54
TOW	5	1	0	0	6	0	0	12
LANCE	0	1	0	0	3	0	0	4
AN-TSQ-73	1	3	0	0	17 ^c	0	0	21
PERSHING	0	2	0	0	7	0	0	9
CHAPPARAL	7	2	0	0	6	1	1	17
TOTAL	25	19	0	0	89	14	2	149

Notes:

^aIncludes 18 contractors

^bIncludes 6 contractors

^cIncludes 16 contractors

TABLE 2-4. TSARCOM LEVELS BY MAJOR WEAPON SYSTEM
(4th Quarter FY 79)

System or Equip- ment	Major Command							Total
	Forces Command	Training and Doctrine Command	Army Communi- cations Command	National Guard	U.S. Forces Europe	U.S. Forces Korea	U.S. Forces Pacific	
AR-1	16	4	0	2	9	3	1	35
OV-1	1	0	1	2	1	1	0	6
CR-47	9	1	1	1	3	1	1	17
CR-54	0	0	0	5	0	0	0	5
OR-58	8	1	0	1	6	2	1	19
UR-60	1	0	0	0	0	0	0	1
RU-21	0	0	0	0	1	1	0	2
U-21	0	0	0	0	1	0	0	1
TSE	10	2	0	0	11	6	1	30
Turbines	1	2	0	0	1	0	0	4
TOTAL	46	10	2	11	33	14	4	120

At the end of FY 79, only MICOM relied on contractors (40). Since then, CERCOM has contracted for three FMTs. However, both CERCOM and TSARCOM anticipate extensive use of contractors in the future, as new acquisitions create a workload beyond the capacity of their present work forces. MICOM also expects its use of contractors to increase, as new acquisitions are expected to generate 50 new FMT requirements each year between now and FY 85.

The MAIT Program

Unlike the LAP, which concentrates on specific equipments, the MAIT program focuses on general maintenance deficiencies. Some of the MAITs' responsibilities include instruction in the Army's readiness reporting system, assistance with requisitioning and managing spares, formal training in the use of instruments and test equipment, and advice on maintenance safety and quality control. They also perform organizational maintenance, often in an OJT environment, on basic automotive equipment and simple electronics, if

requested to do so by unit commanders. They do not provide specialized maintenance or technical advice on the more complex weapon systems, such as HAWK, TACFIRE, and the AN/TSQ-73 Missile Minder.

The MAIT program is both funded and controlled by the major commands. A MAIT typically consists of 6 to 10 men with various skills--an electronics technician, an automotive mechanic, an expert on the Army supply system, etc.--and usually includes both military and civilian personnel. The civilian members of a MAIT (all civil service employees) provide continuity and expertise, while the military members provide a trained base designed to sustain the MAIT program during periods of heightened tension or war. Virtually all deployed MAITs are staffed with military personnel.

Table 2-5 shows military and civilian MAIT personnel by major command, and represents the MAIT population at the time of the last comprehensive overview, completed in August 1975. The MAIT population today is reportedly lower. Estimated funding in FY 75 was \$13.3 million, at an average cost of \$34,600 per man. Costs include salaries, travel, and equipment, but no training costs, pension contributions, or other benefits.

TABLE 2-5. MAIT TECHNICAL ASSISTANCE LEVELS

Major Command	Civilians	Military	Total
Forces Command			
Active	45	80	125
Reserve	274	165	439
Training and Doctrine Command	56	27	83
U. S. Army, Europe	1	119	120
All Others	<u>8</u>	<u>63</u>	<u>71</u>
TOTAL	384	454	838

A new MAIT directive (a revised version of AR 750-1) will call attention to the possible deployment of units that are being supported by

civilian MAITs and will point out the importance of ensuring the operational readiness of the deploying units' equipment. Even though civilian MAITs cannot be required to deploy with their units, the directive will suggest that they may be asked to do so.

Other Forms of Civilian Technical Assistance. Direct support, general support, and depot level organizations are frequently called upon to assist lower-level maintenance organizations. Where these higher-level maintenance organizations are civilian-staffed, there is occasional civilian technical assistance. However, the bulk of this assistance involves engineering changes, and not necessarily advice, instruction, or training. This type of technical assistance in the Army is not covered by the policies in DoD Directive 1130.2.

When new systems are being deployed, contractor-staffed Materiel Fielding Teams accompany them into the field to assure their proper installation and maintenance. Typically, technical assistance is a small part of their task, but they do at times provide assistance to the military operating and maintenance personnel.

On occasion, a more substantial form of civilian technical assistance is provided by contractor support activities in the field. The Pershing Modification Shop in Europe, for instance, at one time provided technical assistance to units that requested it. That practice has recently ended, but it might recur at other modification and repair facilities in the future.

Increased civilian assistance from general support and depot repair facilities can be expected in the future for Blackhawk helicopter units and Patriot missile batteries. Both systems are intended to be contractor-supported above the organizational level for an indefinite period of time.

AIR FORCE

Overview of Policies

Air Force Manual 66-18, "Engineering and Technical Services Management and Control," implements DoDD 1130.2 and is the primary statement of Air Force policy. It closely follows OSD policy in defining technical assistance, the uses to which civilians may be put, and the requirements for management control.

The Director of Maintenance and Supply (AF/LEY) is assigned headquarters-level responsibility for overall direction, control, coordination, and review of the ETS program. This office receives annual reports from all major Air Force activities on the use of civilian technical assistance, including man-months, funding, and location, by weapon system. These reports distinguish three categories of technical assistance: AFETS (Air Force civilian ETS personnel), CFS, and FSR.

The Air Force implements the 12-month restriction provision of DoDD 1130.2 by limiting use of CFS to 12 months after equipment has reached Operationally Ready (OR) status. OR dates may be adjusted to accommodate directed equipment modifications or other contingencies which render the equipment not-OR. Waivers to this 12-month limitation may be granted by the Secretary of the Air Force or his designee, and must be justified by the major activity concerned and forwarded for action to AF/LEY.

Technical Assistance Levels by Major Activities

Table 2-6 shows the levels of man-years and funding for AFETS, CFS, and FSR, by major Air Force activity. Table 2-7 breaks out these same data by principal weapon systems supported, in descending order of funding. (These data were provided by AF/LEY and cover FY 79 support.) The Tactical Air Command is the single largest user of technical assistance in the Air Force, and the F-15 and the F/RF-4 are the dominant systems.

TABLE 2-6. AIR FORCE TECHNICAL ASSISTANCE LEVELS
(Funding in \$000s)

Major Activity	AFETS		CFS		FSR	
	Funding	Man-Years	Funding	Man-Years	Funding	Man-Years
Air Defense Command	\$ 2,393	127	\$ 686	13	\$ 705	14
Tactical Air Command	3,825	188	5,924	107	724	13
Strategic Air Command	1,706	78	282	6	427	8
Air Force Comm. Service	1,237	58	947	21	39	1
Military Airlift Command	1,345	59	761	12	894	15
Pacific Air Force	85	3	1,156	18	114	2
U.S. Air Force Europe	—	—	2,359	28	95	1
Air Force Logistics Comm.	—	—	2,698	49	2,644	47
Air Force Systems Comm.	—	—	427	9	—	—
Air Training Command	—	—	317	4	—	—
Air Force Reserve	—	—	228	3	—	—
TOTAL ^a	\$10,594	512	\$15,784	269	\$5,641	100
Average Cost Per Man-Year	\$20,700		\$58,700		\$56,200	

^aIndividual entries do not add to totals due to rounding.

TABLE 2-7. AIR FORCE TECHNICAL ASSISTANCE BY MAJOR WEAPON SYSTEMS
(Funding in \$000s)

Weapon System	AFETS		CFS/FSR		Total	
	Funding	Man-Years	Funding	Man-Years	Funding	Man-Years
F-15	\$ 877	43	\$ 5,823	99	\$ 6,700	142
F/RF-4	901	43	3,193	50	4,094	93
C-141/C-5	821	36	1,875	80	2,695	66
A-10	347	17	1,413	22	1,759	39
B-52	1,138	52	581	11	1,720	63
E-3	235	12	1,369	20	1,603	32
F/FB-111	484	23	1,074	23	1,558	46
TRACALS	412	20	929	22	1,342	42
A/C Missile Systems	456	24	736	13	1,191	37
Surv. Radar	1,089	58	89	2	1,178	59
All Others	3,835	185	4,344	79	8,178	264
TOTAL ^a	\$10,594	512	\$21,425	369	\$32,018	881

^aIndividual entries do not necessarily add to totals due to rounding.

Table 2-6 also shows the average cost per man-year in each ETS category. These figures suggest that AFETS personnel cost significantly less than either of the contract alternatives. However, the low AFETS average cost reflects only actual salary, and not the full cost to the Air Force.

Concepts of Employment.

The Contracting Division of the 2750th Air Base Wing, Wright-Patterson AFB, has the primary responsibility for negotiating and executing CFS/FSR contracts for all major Air Force activities. These activities, in turn, have the responsibility to issue and administer individual task orders against those contracts.

AFETS personnel are subject to change in their permanent duty stations under terms of an established civilian mobility program as provided for by Air Force Regulation 40-303, "Civilian Mobility." They must agree to this mobility as a condition of employment, but they are not required to change duty stations more than once every 3 years, and must be given 90 days' advance notice. As a matter of policy, the Air Force severely restricts the assignment of AFETS overseas. Currently, only about 20 AFETS personnel are assigned outside CONUS.

NAVY

Overview of Policies

The Chief of Naval Material (CNM) has been designated the single office responsible for coordination of, and cognizance over, all technical assistance within the Navy. CNM, in turn, has issued implementing regulations for Naval Material Command (NMC) components on the procurement and use of technical assistance. The principal NMC components using technical assistance are the Naval Air, Sea, and Electronic Systems Commands (NAVAIR, NAVSEA, and NAVELEX SYSCOMs) and the Strategic System Project Office (SSPO). Each of them has, in turn, issued its own implementing regulations.

CNM requires Navy activities to achieve in-house self-sufficiency in installing, operating, and maintaining their weapons, equipment, and systems,

in conformance with DoDD 1130.2. CNM also places the same general limitations on the use of technical assistance, that is, primary use of in-house assets and restrictions on the use of CFS. Each major component must designate a central office to review, administer, and manage its technical assistance programs. CNM has delegated to NAVSEA, NAVAIR, and NAVELEX the authority to grant waivers to the 12-month limitation on CFS when annual costs total less than \$65,000; this authority may not be redelegated.

NAVAIR has assigned the Naval Aviation Engineering Service Unit (NAESU) the mission of providing field technical assistance to all Navy and Marine Corps aviation activities. NAESU's responsibilities include:

- acting as the central procurement manager for all NAVAIR and Marine Corps CETS
- controlling the use of all Navy Engineering and Technical Services (NETS)¹ specialists, that is, both civilian employees and military personnel assigned to aviation technical assistance roles
- collecting and consolidating technical assistance requirements
- compiling reports on the ETS Program.

NAESU also manages all other NAVAIR technical services contracts including Contractor Maintenance Services (CMS) and Contractor Plant Services (CPS). NAESU also manages the NAVAIR Foreign Military Sales ETS Program. In short, NAESU is the responsible and cognizant office for all matters relating to naval aviation technical services.

NAVSEA has designated the Fleet Logistics Support Office, under the Deputy Commander for Ship Systems (NAVSEA 05), as its focal point for engineering and technical services. This office is also the program manager

¹Hereafter, the term NETS will refer only to civilians unless otherwise specified.

for the NAVSEA Direct Fleet Support (DFS) Program. The DFS Program provides NAVSEA-funded support to the fleet for correcting operational and maintenance problems beyond the capabilities of organizational or intermediate maintenance levels, Naval Ship Repair Facilities (SRF), or Mobile Technical Units (MOTU). This support is normally funded by the DFS Program Manager, but may also be funded by established NAVSEA improvement/get-well programs to support NAVSEA shore activities.

NAVELEX has designated the Fleet Liaison Office as its coordination point for management and procurement of ETS for the various electronic systems, equipment, and components assigned to it for support responsibility.

SSPO has delegated to its Technical Division the responsibility for coordinating requirements and preparing reports on planned and actual use of CETS in support of the Fleet Ballistic Missile (FBM) Weapon System or Strategic Weapon System.

Technical Assistance Levels by Major Component

NAVAIR. The level of NAVAIR technical assistance in FY 78 is shown in Table 2-8. Even though considerable data were available at NAESU, that data did not identify fleet activities supported. Consequently, Table 2-8 only shows Navy and Marine Corps aviation activities as a total. Table 2-9 breaks out technical assistance support by major weapon systems and equipment, in decreasing order of funding. Note the similarity between the Air Force and NAVAIR cost per man-year by technical assistance category and the number of older weapon systems (such as the A/TA-7, F/RF-4, and A/EA-6) that still require over 100 man-years of technical assistance annually.

As an aside, CNM no longer requires reporting at the level of detail provided in FY 78. Consequently, comparable FY 79 data were not available from NAESU. NAESU representatives did indicate, however, that technical

TABLE 2-8. NAVAIR TECHNICAL ASSISTANCE LEVELS
(Funding in \$000s)

	NETS	CFS	FSR
Funding	\$14,124	\$38,660	\$18,908
Man-Years	487	706	361
Average Cost Per Man-Year	\$29,000	\$54,800	\$52,400

TABLE 2-9. NAVAIR TECHNICAL ASSISTANCE BY MAJOR WEAPON SYSTEM
(Funding in \$000s)

Weapon System	NETS		CFS/FSR		Total	
	Funding	Man- Years	Funding	Man- Years	Funding	Man- Years
S-3A	\$ 744	26	\$ 8,610	134	\$ 9,354	160
F-14	670	25	8,318	162	8,988	187
P/EP-3	2,422	83	5,986	102	8,408	184
A/EA-6	1,581	56	5,929	116	7,510	171
F/RF-4	1,794	66	3,567	66	5,360	132
A/TA-7	1,092	38	4,071	76	5,163	114
E-2	623	22	3,888	73	4,511	95
VAST ^a	—	—	2,628	47	2,628	47
GSE ^b	1,767	56	785	42	2,552	74
A/TA-4	274	10	2,048	41	2,322	51
H/AH/HH/TH/UH/VH-1	213	7	1,493	32	1,725	40
CH/HH-46	506	17	1,133	17	1,638	34
SH-2	176	6	1,415	28	1,592	34
H/CH/RH-53	139	5	1,232	27	1,372	32
SH/UH-3	166	6	1,133	18	1,298	24
All Others	1,957	63	5,348	90	7,305	153
TOTAL ^c	\$14,124	487	\$57,568	1,067	\$71,692	1,554

^aVersatile Avionics Shop Test.

^bGround Support Equipment.

^cIndividual entries do not necessarily add to totals due to rounding.

assistance funding requirements are increasing at annual rates of 12-13 percent.

NAVSEA. The DFS Program funds technical assistance in three areas: NETS staffing of the Naval Sea Support Centers (NAVSEACENs) and the Naval Ship Systems Engineering Station (NAVSSSES) in Philadelphia, CETS augmentation support for the MOTUs, and CETS emergency and on-call technical assistance

beyond the capabilities of the MOTUs or the NAVSEACENs. Table 2-10 shows funding, man-years, and average cost per man-year in each area for FY 80. Note that the average cost per man-year is significantly higher than that reported by both NAVAIR and the Air Force. One likely explanation is that DFS reports total NETS cost and not just salaries. Also observe that the use of CETS in augmentation or on-call capacities is considerably more costly than using NETS.

TABLE 2-10. DFS TECHNICAL ASSISTANCE LEVELS
(Funding in \$000s)

Activity	Funding	Man-Years	Average Cost Per Man-Year
<u>NETS</u>			
NAVSEACENLANT	\$ 4,300	99	\$43,400
NAVSES	1,600	26	60,500
NAVSEACENPAC	<u>4,400</u>	<u>101</u>	<u>43,400</u>
Total	\$10,300	227	\$45,400
<u>CETS</u>			
MOTU Augment.	\$ 4,400	53	\$83,000
Emerg./On-Call	<u>2,052</u>	<u>16</u>	<u>125,000</u>
Total	\$6,452	69	\$93,000
TOTAL	\$16,752	296	\$56,500

Other activities within NAVSEA also fund technical assistance through the NAVSEACENs. For example, NAVSEACENLANT procures, on an on-call basis, about 6 man-years of CETS to support the fleet's electromagnetic interference suppression program. This program is funded by the Combat Systems Directorate (NAVSEA 06). That Center also procures about 11 man-years of CETS to support the NAVMAT-instituted Metrology Automated System for Uniform Recall and Reporting (MEASURE) Program. This program is devoted to improving the calibration of various components and equipment throughout the fleet.

Total NETS staffing for the NAVSEACENs is about 390 in LANT and 412 in PAC. The NAVSEA 05-funded support of the DFS Program accounts for about

227; the remainder may be funded by other divisions and directorates within NAVSEA. A substantial portion of the NAVSEACEN effort, however, is devoted to tasks not defined as technical assistance. These tasks include various system functional checks, ship improvement installations, inspections, and other logistic support. As a consequence, the level of technical assistance provided by the NAVSEACENs is not available. If all the NAVSEACEN NETS are actually assigned to technical assistance roles, then the total NETS funding for FY 80 would be approximately \$34,720,000, or \$43,000 per man-year.

The MOTUs are staffed with about 325 military maintenance personnel in pay grades E-7 through E-9. These personnel provide the same type of support as the NETS and CETS. In addition to the CETS augmentation funded by the DFS Program, NAVELEX provides 48 man-years of CETS augmentation to the MOTUs. On top of that, the MOTUs are assigned about 24 NETS personnel, funded by the fleets. In total, the MOTUs employ approximately 450 trained technicians, distributed among 11 units and detachments around the world.

NAVELEX. Technical assistance within NAVELEX for FY 80 was approximately \$3 million, covering 48 man-years of effort. That assistance was exclusively CETS augmentation at the MOTUs, as mentioned above. NAVELEX does not use NETS. Average CETS cost per man-year was \$62,500.

SSPO. Technical assistance funding in FY 79 for SSPO totaled \$2,265,000, for 42 man-years (all FSR) in support of the FBM Weapon System. This support included 23 contractor personnel stationed outside of CONUS. Average cost per man-year was \$54,500.

Concepts of Employment

NAVAIR. The centralized management of the naval aviation technical assistance program is backed up by numerous field offices. Each field office is further supported by detachment offices located at major aviation activities of the Navy and Marine Corps.

NAESU, through its field offices, assigns specific tasks to the NETS and CETS. These assignments include direct support to aviation squadrons, air groups, and maintenance activities ashore and afloat. The nature of the support requires full-time technical assistance in most cases, including support for squadrons embarked aboard aircraft carriers and embarked aviation intermediate maintenance departments (AIMD). As a consequence, both NETS and CETS serve as "ship riders." In FY 78, 17 NETS and 237 CETS served aboard carriers for 30 consecutive days or more. In addition, 48 NETS and 185 CETS served at shore stations outside CONUS.

As an example of the level of technical assistance at just one shore activity, the NAESU Atlantic Field Office provided Naval Air Station Oceana with 75 man-years of support in FY 78--41 CETS and 34 NETS. Most of this assistance went to support F-14, F-4, and A-6 aircraft squadrons based ashore at Oceana. About 5 man-years of effort supported the VAST stations in the AIMD.

Technical assistance levels aboard aircraft carriers vary considerably. NETS are not normally assigned to shipboard billets; these positions are almost invariably filled by CETS. NAESU headquarters estimates CETS costs of \$1-1.5 million per carrier for each normal cruise. The NAESU Atlantic Field Office stated that Atlantic Fleet carriers average from 21 to 30 embarked CETS, depending upon the size and age of each carrier.

NAVSEA/NAVELEX. When surface ships and submarines require outside technical assistance to solve maintenance problems, they first explore fleet assets, including tenders and shore intermediate maintenance activities. If those facilities do not possess the necessary capabilities, fleet units may request help from depot-level resources. Usually, however, they will contact the nearest MOTU. As noted previously, the MOTUs employ military technicians,

NETS, and CETS, all of whom are available to assist the fleet when requested. Such a request is almost invariably instigated by a Casualty Report (CASREP), initiated by the ship and describing the specific equipment or component and the degree of impact on materiel readiness.

The MOTU responds by sending a technician to the ship to advise its crew on appropriate methods of diagnosing the problem and repairing the equipment. MOTU personnel may assist the crew in the diagnosis and repair itself, but may not perform repair on their own. They are responsible only to their MOTU supervisors and not the ship's commanding officer. They function as "circuit riders" and do not remain aboard any one ship longer than required to accomplish their function.

If the nearest MOTU does not possess the necessary skills to respond to the CASREP, the ship may request support through the Type Commander (TYCOM), for example, Commander Naval Surface Forces Atlantic. The TYCOM screens all such requests, usually through his own MOTU Coordinator, to determine if other MOTUs have personnel who possess the required skills. The Coordinator will also survey other TYCOM assets if necessary. If the TYCOM is unable to provide the required assistance from his organization, he will pass the request to the NAVSEACEN. The NAVSEACEN will screen its in-house assets and those of other naval activities to locate DFS technical assistance through NETS. If NETS are not available, the NAVSEACEN may request CETS through the DFS Program Manager, who may draw upon emergency or on-call contracts to provide the necessary assistance.

The MOTUs primarily provide assistance in the areas of electronics and combat weapon systems. The emergency and on-call CETS usually support hull, machinery, and electrical equipment.

SSPO. The FBM Weapon System appears to be supported in a manner substantially different from other naval weapon systems. Being entirely a strategic system, an FBM submarine operates on a 3-month cycle--2 months at sea and 1 month in port. While on patrol, the submarine is on a wartime basis and must operate independently and undetected. Therefore it must possess full organic capability to correct any equipment failures. The whole FBM program has been focused on this concept since its inception, and apparently has attained higher levels of organic maintenance skills and capabilities than for most naval weapon systems. As a consequence, the FBM Program Manager stated that they have no need for either DFS or MOTU support. He further stated that SSPO does employ a limited number of FSRs, primarily at submarine tenders, but they are used only for liaison service, and not for instructing or training in-house personnel.

3. EFFECTIVENESS OF CURRENT POLICY

CURRENT POLICY OBJECTIVES

To recapitulate, the primary objective of DoDD 1130.2 is to effect the transfer of technical knowledge from equipment producers to the users, by the use of DoD or contract technical assistance. The principal restrictions on the use of technical assistance are that:

- CFS is limited to a 12-month period following self-sufficiency.
- Exceptions to this limitation require a waiver from a designated authority.
- CFS shall be used only when militarily necessary and when in-house technical assistance is impractical.
- CFS personnel shall not be used to avoid manpower ceilings, nor be supervised, directed, or evaluated by U.S. Government officials.

The significant management control provisions of the Directive include requirements that each component designate a single office at the headquarters level for coordination and cognizance, and that each component conduct annual reviews of the services and report CETS levels and funding in accordance with DoD Instruction 4100.33 (CITA), under functional category T813, "Contractor Engineering and Technical Services."

ASSESSMENT OF COMPLIANCE AND EFFECTIVENESS OF DEPARTMENT PROGRAMS

All the Military Departments have issued regulations implementing the above policy and have designated a single office at the headquarters level for coordination and cognizance. The actual degree of compliance and the effectiveness of implemented programs varies considerably.

Army

The Army complies with both the letter and spirit of DoD policy, in the sense that almost all of its technical assistance is provided by military

or civil service technicians. CFS, as well as FSR, personnel are used only when militarily necessary and when in-house support is not available; waivers are required for the use of both CFS and FSR beyond a 12-month period, and must receive final approval at the Secretarial level. Thus, Army regulations go beyond DoD policy in limiting the extended use of contractor technicians. This may explain why less than 5 percent of the Army's technical assistance effort is performed by contractors, while the Navy and Air Force contract much more extensively.

Management control is vested and exercised at successive levels down to the MRCs. Management reports on LAP technical assistance activity are developed quarterly. MAIT activity, controlled and funded by major commands, is not reported to the same degree as the LAP; the most recent data on the MAIT population were compiled in 1975.

In recent years Army reporting of contract technical services under CITA category T813 has been inconsistent with the levels reported in Chapter 2. For example, in FY 78 (the latest year of available CITA data) the Army CITA report showed 53 contractor man-years, all in CONUS, yet Table 2-3 shows only 40 MICOM contractor FMTs, all overseas.

The quality of the LAP's technical assistance effort varies considerably across weapon systems, but generally it is highly rated by commanders in the field. The wartime essentiality of LAP personnel, however, is debatable. On the one hand, the FMTs assert that, in their absence, materiel readiness will degrade substantially, and that some complex equipments, for example, HAWK missile batteries, would become totally inoperable in as little as 5 days. On the other hand, direct support platoon chiefs in the field report that their experienced NCOs can handle many of the maintenance tasks performed by FMTs, and that their equipments would still be operable even if many failures went uncorrected.

In the short run, FMT maintenance and troubleshooting would be missed most, but would not be likely to degrade the readiness of more than a few weapon systems, albeit significant ones. Some helicopters, sophisticated communications equipment, and air defense missiles appear highly sensitive to FMT availability; they require FMT maintenance assistance regularly, even in peacetime when their rates of utilization and failure are low. But many systems, such as the Vulcan gun and most armaments, require such assistance rarely, and are unlikely to be substantially affected by a short-term FMT absence. In summary, while only a few weapon systems might be affected, the impact of FMT evacuation on those systems is potentially severe.

Air Force

The Air Force also is in compliance with DoD policy. The Air Force headquarters, through AF/LEY, exercises more centralized coordination of, and cognizance over, procurement and use of technical assistance than other headquarters. It is the only Military Department in which the designated point of contact at the headquarters level has comprehensive, detailed, and up-to-date information on the number, categories, locations, and funding levels of technical assistance.

Management control of technical assistance is vested and exercised at the headquarters and major command levels. Detailed reports on funding and man-years are submitted by all major commands to AF/LEY at regular intervals for program management. However, the Air Force CITA reporting of contractor technical assistance under category T813 has been severely understated in prior years; for example, only 57 contractor man-years in CONUS were reported in FY 78, whereas Table 2-6 shows well over 100 man-years in the Air Defense Command and Tactical Air Command.

Requests for waivers to the 12-month restriction on CFS are screened by the Deputy Chief of Staff for Logistics at each major command. As a result, very few such requests are forwarded to headquarters. Those that are forwarded must be approved at the Secretarial level.

The Air Force relies upon civilian technical assistance to a lesser degree than the Army and Navy Departments, especially when the number and complexity of weapon systems the Air Force must maintain are taken into account. However, both the F-4 and B-52 aircraft still demand substantial in-house and contractor support. Of course, since these aircraft were first introduced, the Air Force has instituted many modifications which have vastly changed their capabilities and their maintenance requirements. Even so, while it might be expected that technical assistance levels for both aircraft would at least shift over the years to predominantly in-house support, this has occurred only for the B-52.

The Air Force assigns over 90 percent of its civilian technicians to CONUS locations. Of the few assigned overseas, most are contractor technicians. Thus, the Air Force, in contrast to the Army and Navy, would probably be less susceptible to degradation of weapon system materiel readiness in wartime, should those civilians overseas elect not to remain at their assignments.

AF/LEY representatives stated that their problems of retaining military personnel with critical skills were not as severe as those of the Army and Navy, thus giving them a better base of skilled military technicians, especially at the supervisory level. The reasons cited were the less arduous duty assignments and fewer family separations.

Navy

The implementation of DoD policy within the Navy is extremely variable among the NMC components. CNM exercises loose management control over the funding and employment of technical assistance. For the most part, the SYSCOMs and SSPO act independently, handling their own procurements and establishing their own concepts for employment. Within each component, the degree of management control varies from the highly centralized NAVAIR concept to the fragmented NAVSEA approach. Employment concepts differ radically; NAVAIR technical assistance often includes full-time, semi-permanent assignments of civilians to aviation activities, even aboard aircraft carriers, whereas NAVSEA and NAVELEX, in general, use the "circuit rider" concept.

NAVAIR, which procures and uses more civilian technical assistance than any other NMC component (or any other Military Department for that matter), appears to exercise tight control over that use through a highly centralized procurement office, NAESU. NAVAIR requires that 12-month waiver requests for CFS be approved at its headquarters. Management information reporting within NAVAIR, at least prior to FY 79, has been extremely thorough and extensive. It is the one component whose CITA reports on contract technical assistance are in substantial agreement with its internal reports.

NAVSEA's degree of compliance with DoD policy is difficult to assess, primarily because of the fragmented nature of its overall technical assistance management. No one office within NAVSEA has management control over, or full knowledge of, the entire NAVSEA technical assistance assets.¹ Application of the 12-month CFS restriction appears to be spotty, and distinctions between CFS and FSR personnel are vague, sometimes nonexistent.

¹The ORI Technical Report 1488, "Technical Assistance Study - Phase III (Revised)," of 31 December 1979, reported that total funding for DFS is not readily available within the NAVSEA headquarters (p. 2-9).

The DFS program management office stated that reports on procurement are submitted only to satisfy comptroller requirements, and not for program planning. However, control over the MOTUs and emergency/on-call CETS is more tightly exercised; accurate and comprehensive reports on assets and employment are submitted monthly. In recent years, NAVSEA has not submitted contractor technical assistance data in response to CITA reporting requirements.

Both NAVELEX and SSPO appear to exercise technical assistance management control through single offices at their respective headquarters. Neither component uses in-house civilian employees for technical assistance. The information provided LMI by NAVELEX did not specify the mix of contract technical assistance between CFS and FSR; however, it did state that all CETS procurement requests were screened with regard to the 12-month restriction. The SSPO Program Manager stated that all contract technical assistance personnel were FSR, and that the 12-month restriction did not apply. CITA reporting by NAVELEX does not agree with the information they provided LMI; CITA reports include no submissions by SSPO.

NAVSEA, NAVELEX, and SSPO have also included in their implementing regulations detailed listings of those contractor support services that do not constitute technical assistance within the scope of DoDD 1130.2. These services, then, are excluded from the management control provisions of that Directive. They include:

- physical installation and test of systems and equipment during construction, overhaul, and conversion of ships
- conduct or support of research, development, integration, and evaluation of systems and equipment
- engineering studies to provide necessary information to enable the NMC component to insure compatibility of equipments
- studies to improve and update computer programs for use with tactical equipments

- studies, design, development, test, and evaluation for improvements to various systems
- engineering test and evaluation of proposed changes to systems or equipments
- development of changes to technical manuals to reflect design changes and alterations in equipment changes, in maintenance procedures, and to improve operation of equipment.

The nature of the above support services requires, in part, the same levels of technical skill and knowledge needed to provide the advice, instruction, and training that fall within the purview of DoDD 1130.2. Hence, the excluded services may well be performed by the same personnel who provide the included services. The use of NETS in the NAVSEACENs presents a similar circumstance, in that there is no clear-cut distinction between those NETS personnel providing assistance under DFS and those providing other technical services.

In the case of contract technical assistance, some contractor personnel may be assigned to provide both the excluded and included support services, with inadequate reporting of both. If the predominant services provided under a specific contract are in the excluded category, then the services provided will not be reported, even though some technical assistance was actually performed.

The current version of DoDI 4100.33 (CITA) appears to define ETS in sufficient detail under functional area code T813 to distinguish it from the services in the excluded category. However, those excluded services do not receive adequate definition; for example, engineering test and evaluation of proposed equipment changes, as well as development of changes to technical manuals, are not covered by any specific code and, consequently, never reported.

PLANNING AND PROCUREMENT

Planning and programming for procurement and use of civilian technical assistance is not being carried out with equal diligence or effectiveness across the Military Departments. The Aerospace Industry Association believes that some DoD procurement offices assume contractors have adequate technical assistance personnel available at all times. The Association further asserts that the procurement process frequently requires too short a notice, and that the DoD demand for quick response forces up the costs to the contractor and, hence, to DoD. To ensure a steady supply of skilled technicians, with up-to-date training on critical systems, contractors have to be able to provide them with long-range job security.

Whether the industry position is correct or not, there is no doubt that some contractor man-year costs are very high. The average cost per man-year for emergency/on-call technical assistance within NAVSEA is approximately \$125,000. In the Army, the average cost for contractor support within CERCOM is \$90,000 per man-year, while MICOM costs for contractors (all deployed) range from \$100,000 to \$120,000 per man-year. In the Air Force, whose average CETS man-year costs are comparable with NAVAIR, some contractors charge in the range of \$80,000 to \$100,000 per man-year; one contractor charged \$242,000 per man-year. NAVAIR has a number of short-term contracts which, on an annual basis, range from \$80,000 to over \$200,000 per man-year.

For highly centralized and tightly controlled procurement programs such as those managed by the 2750th Air Base Wing for the Air Force and by NAESU for NAVAIR, average contractor man-year costs have been kept at lower levels, even when most of the procurements are noncompetitive. Further, short-term, short-notice procurements appear to result in substantially higher costs to DoD. Firmer controls on the procurement process, accompanied by improved forecasts of requirements, will result in significant cost savings to DoD.

ACHIEVING SELF-SUFFICIENCY

In light of DoD policy objectives and the degree of implementation by the Military Departments, the question "Are the Military Departments achieving self-sufficiency?" remains. We take "self-sufficiency" to mean the self-contained capability of combat and combat support activities to perform required direct maintenance on assigned weapon systems and equipment.² In that sense, the Military Departments are not achieving self-sufficiency.

The evidence indicates that the Military Departments require civilian technical assistance on a continuing basis, and frequently throughout the operational life of many modern weapon systems. The transfer of technical knowledge from producer to user, the guiding precept of DoD Directive 1130.2, is seldom completed for sophisticated weapon systems, despite extensive and early use of technical assistance. For example, almost one-third of the total Air Force technical assistance funding goes for the support of aircraft introduced during or prior to the Vietnam War, that is, the F/RF-4, B-52, F/FB-111, C-141, and C-5 aircraft. Likewise, over half of the NAVAIR technical assistance funding goes for the support of such aircraft, including the P-3, A-4, A-6, A-7, F-4, H-46, H-3, and H-2 aircraft, plus others used in training or support roles. These aircraft are not the models originally introduced; most have undergone extensive modifications and updates, some to the point where the only similarity to the original model is exterior appearance. Nonetheless, each modification has induced a new requirement for technical assistance.

The Military Departments cite the principal reason for not achieving self-sufficiency as the problem of retaining adequate levels of skilled,

²This is essentially the policy concept of DoD Directive 4151.1, "Use of Contractor and Government Resources for Maintenance of Materiel," Section IV.B.1.

disciplined, and dedicated military maintenance personnel. All the Military Departments suffer this problem to some degree.

The heart of the problem appears to be inadequate monetary incentives, frequently coupled with lengthy family separations, and aggravated by attractive opportunities in industry. For example, according to Commander Naval Air Forces, Atlantic Fleet, an aviation jet mechanic at the E-6 level with 8 to 10 years' experience earns under \$15,000 a year (base pay plus allowances and tax advantages). The starting wages in industry for a mechanic with that experience level ranges from \$16,000 to \$23,000, based on location and personal experience. It is not surprising, then, that many talented young enlisted men are opting to leave the military.

Unfortunately, those highly skilled individuals are precisely the ones needed to provide the necessary advice, instruction, and training to the untrained and unskilled. Their departure leaves a void that can only be filled by civilians. The Military Departments contend that, until the loss of experienced enlisted men can be effectively stopped, the need for civilian technical assistance will not only continue but will increase. They assert that to hold civilian technical assistance at arbitrary levels, under conditions of increasing maintenance requirements and declining military skills, would invite inevitable cutbacks in operating strengths.

In view of present levels of technical assistance and the retention problem, should self-sufficiency continue to be a DoD goal? Perhaps the goal is unattainable, and OSD should recognize civilian technical assistance as an essential adjunct to the military maintenance work force. Perhaps DoD policy should be amended to permit such use of civilian technical assistance as the Military Departments deem necessary to ensure adequate materiel readiness levels.

Still, basic military concepts demand that combat and combat support activities be capable of operating and maintaining their own equipment without reliance upon civilian assistance, especially in a hostile environment. The fact that the retention problem apparently prevents some combat units from achieving and sustaining self-sufficiency does not alter those concepts.

POLICY EVALUATION - SUMMARY

The current DoD policy has one overriding defect. It assumes that the military can achieve self-sufficiency in weapon system direct maintenance capability (the complete transfer of technical skills to military personnel) within an arbitrary time period. The problem is not the goal of self-sufficiency but the inconsistent restrictions imposed on the use of civilian technical assistance to achieve it.

The current policy permits the use of CFS only through the 12-month period after self-sufficiency is attained, unless waivers are obtained, but why should technical assistance be needed once self-sufficiency is attained? The 12-month prohibition is not applied to in-house civilians or FSR.³ Yet there is little, if any, real distinction between the functions performed by some CFS and FSR personnel; on occasion, contractor personnel have alternated between CFS and FSR assignments. In addition, in-house civilians perform both functions (advice, instruction, and training as well as liaison). This inconsistency has induced some activities to evade the CFS restriction by procuring FSRs instead, even though their principal function might be advice, instruction, and training. In the Army, which has sought to comply with the letter and spirit of the policy, this inconsistency imposes special and time-consuming waiver procedures to procure contractor support even when there

³There is also no danger of violating civil service regulations by retaining contractor personnel for more than a year. See Appendix B for a discussion of the legal issues.

are no in-house capabilities, for example, for certain subsystems of the Army HAWK missile and the AN/TSQ-73 Missile Minder.

Further, the existing policy does not address the problem of providing and assuring critical civilian technical assistance in wartime, even though OSD recognizes the problem. If civilian technicians elect not to fulfill their roles in crisis situations, the effect on weapon system materiel readiness could be substantial. With current levels of civilian technical support, it is appropriate to examine this topic.

CIVILIAN AVAILABILITY IN WARTIME

Historical Record

Civilians have distinguished themselves by performing vital technical assistance in direct support of combat units from World War II onward. Some served with Army and Marine Corps units in Vietnam, occasionally under hostile fire. Others served aboard Navy ships in the Gulf of Tonkin. The Army reports many instances where civilian employees have volunteered for overseas duty assignments during crises like the 1973 Israeli-Egyptian war. The experience, in general, is that deployed civilian technical assistance personnel--both contractor and in-house--are willing to perform in wartime, even in the most dangerous of situations.

Nonetheless, there is still an apprehension that some civilians might be unwilling to remain in areas of hostility or war. This apprehension was sparked by the reported mass exodus of U.S. civilian technicians from South Korea, in the wake of the 1976 "tree-cutting" incident in the Demilitarized Zone. As a consequence, the Army has investigated several approaches which might alleviate this problem.

The distinguishing features of the "tree-cutting" incident illuminate some of the factors that make civilian reliability problematic. One of

the more important features of the incident is that it exposed the technicians' dependents, and not just the technicians themselves, to apparently grave danger. DARCOM reports that the danger to dependents caused the technicians to leave the country, and that many of the technicians actually returned to duty after they had escorted their families to a haven. Today, the technicians themselves bear out DARCOM's assessments. In an informal polling of FMTs by the MRCs, virtually 100 percent said that they would work in dangerous areas if the security of their dependents was assured. This position was verified by interviews of FMTs by LMI. The FMTs stated that their dependents' security was their first priority, and that they would not remain in danger zones unless their families were safe.

Another feature of the incident was the suddenness and magnitude of the threat. Those civilians who assisted in Vietnam, for example, had advance warning of the risks they were taking, but those in Korea in 1976 did not. Moreover, in Korea, there existed a real possibility of rapid enemy advance, whereas in Vietnam, the advances turned out to be gradual. Conceivably, then, the fear felt by civilians in Korea was much more substantial than the fear felt by those in Vietnam.

Comparison with Vietnam reveals yet another significant feature of the Korean incident: the relatively meager incentives for civilians to stay. Those who went to Vietnam were paid handsomely to do so. But those in Korea were not going to be entitled to any more money or benefits in wartime than in peacetime.

Finally, to contrast the above incident with the experiences of the Navy, the Army FMTs assigned to Korea had an opportunity to leave the area of danger while the majority of shipboard technicians did not. For the latter, physical constraints alone made evacuation impossible. Thus, they had little choice but to continue with their jobs.

Prospective Impact of Loss

If civilians should choose not to fulfill their technical assistance roles in wartime, the effect on weapon system materiel readiness could be devastating. For example, in the face of prospective reductions in funding for CETS in FY 80, the Commander Naval Air Forces, Atlantic Fleet, stated:

"Continuation of this CETS shortfall will result in jeopardization of LANTFLT flight safety, impaired weapon system capability, and impacted flight training and mission accomplishment objectives. Deterioration in materiel readiness already evident will increase and will remain at this degraded level for some time after relief is obtained."⁴

Similar but informal statements have been noted from other DoD Components, most notably at the Army Missile Readiness Command, in reference to air defense systems in Europe.

The common opinion is that, while weapon system materiel readiness levels might be acceptable at the beginning of hostilities, in the absence of civilian technical assistance, they would drop very quickly. Department representatives have consistently held that the major contribution of civilian technicians in crisis situations is to provide rapid, expert advice to military maintenance personnel on specific repair problems. Without that advice, those weapon systems cannot be quickly and adequately serviced.

At present, there is no way to reliably compensate for the loss of civilians during the early stages of hostilities. Recruitment of technicians during hostilities may alleviate problems that crop up over the long run, at least where there is a transportation line to the hostile region, and where adequate numbers of such individuals are available in CONUS. Such was the case in Vietnam. But in the short run, or where transportation lines themselves are insecure, there appears to be no substitute for deployed civilians in many of their technical assistance roles.

⁴COMNAVAIRLANT message 010809Z of October 1979.

4. CONCLUSIONS AND RECOMMENDATIONS

CONCLUSIONS

Need for Civilian Technicians

The Military Departments acknowledge the need for about 4,500 man-years of civilian technical assistance annually, and expect the requirement to rise. That assistance appears essential, not just to accomplish the initial transfer of skills from producer to user, but also to assist the military to achieve and sustain acceptable levels of materiel readiness. The civilian technicians have been very effective in the latter technical role.

Compliance with DoD Policy

Compliance with DoD policy varies substantially among and within the Military Departments. None has achieved true self-sufficiency, and none is likely to in the current environment of rapid personnel turnover and sophisticated skill requirements. The Army has sought to follow the basic tenets of DoD policy by severely restricting the use of contractor technical assistance, while the Air Force and Navy use contractors to a much greater degree. In general, the Military Departments are observing restrictions on the use of CFS and require specific headquarters approval of requests for waivers. However, some of the Military Departments may be evading the restrictions through the employment of FSR rather than CFS personnel, even though the same assistance is being provided.

Compliance with reporting requirements varies significantly. Only NAVAIR appears to have reported most of its use of contractor services as required by DoDI 4100.33. The remaining components have reported either inaccurately or not at all. Internal Army and Air Force reporting, however, appears to be comprehensive.

These variations in compliance with reporting requirements, coupled with the relatively high cost of some contractor services, suggest the need for firmer management control over the planning, programming, and procurement process. The present provisions in DoDD 1130.2, one of which calls for annual reviews of technical assistance requirements at the headquarters level, are adequate to promote satisfactory management control, but they must be implemented.

Wartime Availability Problem

The Military Departments perceive civilian technical assistance as essential both in peacetime and during periods of increased tension or wartime. At present, however, DoD does not have any effective method for ensuring that deployed civilians will continue to work in crises if they or their dependents are endangered.

Task Objectives

In response to the three task objectives of determining the extent of reliance on civilian technicians, assessing the effectiveness of current policy, and developing and evaluating alternative policies, our conclusions are straightforward.

Extent of Reliance on Civilian Technicians. First, the extent of DoD reliance upon civilian technicians cannot be accurately determined at this time. The Army and the Air Force apparently have comprehensive internal reporting procedures (external ones are inadequate, however). The Navy, with the bulk of the reported technical assistance, is deficient in its reporting. We have little confidence that the technical assistance levels reported by NAVSEA, NAVELEX, and SSPO reflect actual dependence; those levels are likely to be significantly understated.

Effectiveness of Existing Policy. Second, it is almost impossible to assess the effectiveness of existing policy at this time. While self-sufficiency is still the goal of DoDD 1130.2, many provisions of that Directive, designed to help achieve that goal, remain to be implemented. The implications are far-reaching. To illustrate, since management control and reporting requirements have not been fully implemented, OSD cannot establish the extent of current reliance, thus historic and projected trends also cannot be established. This trend information is vital to establish an effective technical assistance program. In addition, the CFS/FSR distinction has already been discussed and should be resolved.

Alternatives to Existing Policy. Third, since much of the existing policy has not been implemented, the development of major alternatives is premature. Several small adjustments, such as eliminating the 12-month restriction on CFS procurement and eliminating the CFS/FSR distinction, will strengthen current policy, however.

RECOMMENDATIONS

Revision of DoDD 1130.2

OSD should revise DoDD 1130.2 so that organic self-sufficiency in maintenance is recognized as a goal, but without any arbitrary time limit on the use of CFS. The Directive should authorize the use of civilian technical assistance whenever necessary to transfer technical skills from producer to user. The decision to use in-house or contractor resources should reflect consideration of both cost and need and be in accordance with the requirements of DoDI 4100.33 (CITA).

These adjustments should be supported with several subsidiary changes. First, the distinction between the advice, instruction, and training function and the liaison function should be eliminated. Second, the present

restrictions on use of CFS should be revised to reflect recent judicial decisions, summarized in Appendix B. Third, the reporting provisions of the Directive should be amended to include both in-house and contractor technical assistance.

Appendix A is a draft revision of DoDD 1130.2 which reflects the changes recommended above.

OSD Review of Compliance with DoDD 1130.2

In view of our assessment of present compliance with DoDD 1130.2 reporting requirements, OSD should require the Military Departments to submit, on a one-time basis, summaries of the latest annual reviews required by the Directive. Such submissions should bring to light details of shortcomings already discussed, especially in the area of management control at the headquarters level. The submissions should also delineate significant trends in the past and projected levels of use of civilian technical assistance, broken out by major weapon systems supported, parent organization, major command, and geographical area of performance. These reviews should also show total DoD costs for in-house civilians as well, as defined in Section D.5.e of DoDI 4100.33.

Further Study of Wartime Availability Problem

LMI recognizes the critical importance of assuring that civilian technical assistance will continue to be available in wartime or periods of heightened tension, especially in overseas areas. We have examined some of the proposals put forth within DoD to provide that assurance, and recommend OSD actively support further in-house effort to reach an acceptable solution.

APPENDIX A

DEPARTMENT OF DEFENSE DIRECTIVE (DRAFT)

SUBJECT Management and Control of Engineering and
 Technical Services

- Refs.: (a) DoD Directive 1130.2, "Engineering and Technical Services -
 Management and Control," June 18, 1979 (hereby cancelled)
- (b) DoD Directive 4151.16, "DoD Equipment Maintenance Program"
 August 30, 1972
- (c) DoD Directive 4151.1, "Use of Contractor and Government Re-
 sources for Maintenance of Material," June 20, 1970
- (d) through (j), see enclosure 1

A. REISSUANCE AND PURPOSE

This Directive reissues reference (a); restates the policies and criteria for management, programming administration, and reporting of engineering and technical service personnel; and supports the policies contained in references (b) and (c).

B. APPLICABILITY

The provisions of this Directive apply to the Office of the Secretary of Defense, the Military Departments, and the Defense Agencies (hereafter referred to as "DoD Components").

C. DEFINITIONS

The terms used in this Directive are defined in enclosure 1.

D. POLICY

The introduction of new equipment and systems, as well as modification of current equipment and systems, requires the transfer of technical knowledge from producer to DoD personnel or user. The purpose of this transfer is to develop, to the extent practical, and as early as possible, the user's capability to maintain and operate the equipment and systems. Under the provisions of this Directive, DoD Components are encouraged to use engineering and technical services to assist in this transfer in order to achieve and retain organic self-sufficiency. To this end, the following services shall be available to them.

1. Contract plant services should be used before delivery of new equipment/systems or before installation of modifications to current equipment/systems.

2. Engineering and technical field services shall be provided to DoD users of equipment/systems on site, through either DoD or contract engineering and technical services specialists. Each DoD Component shall ensure that the knowledge, training, and skill of its specialists are maintained satisfactorily. In determining whether to use in-house or contract services, each DoD Component shall follow the procedures outlined in DoD Instruction 4100.33 (reference (d)).

- a. Contract field services may be used when:

- (1) In-plant technical training and acquisition of engineering knowledge have not been adequate because of the complexity of new equipment/systems or modifications to current equipment/systems, and on-site indoctrination and training of DoD military personnel are needed; or
- (2) A urgent requirement develops after the introduction of the equipment/system, or modifications thereto, for additional advice, instruction, training, or maintenance assistance that cannot be supplied by DoD military personnel.

- b. Contract field service personnel shall be supervised, directed, and controlled by the contractor, and not by employees of the U.S. Government. Contracts for these services shall specify that personnel supervision is the contractor's responsibility.
- c. Contract field services personnel providing engineering and technical services shall not be placed in a policy-making position or placed in a position of command, supervision, or control over DoD military or civilian personnel.

E. RESPONSIBILITIES

1. Heads of DoD Components shall administer the engineering and technical services procedures that are contained in enclosure 3 of this Directive.
2. The Assistant Secretary of Defense (Manpower, Reserve Affairs, and Logistics) (ASD(MRA&L)), after consultation with representatives of the Office of Personnel Management, shall grant exceptions to the policy contained in Section D of this Directive.

F. REPORTS

Reviews of engineering and technical services shall be conducted annually in accordance with the provisions of this Directive, and reported under functional category T813 of DoD Instruction 4100.33 (reference (d)).

G. EFFECTIVE DATE AND IMPLEMENTATION

This Directive is effective immediately. Two copies of implementing documents shall be forwarded to the ASD(MRA&L) within 120 days.

REFERENCES

- (d) DoD Instruction 4100.33, "Commercial or Industrial Activities - Operation of," February 25, 1980
- (e) DoD Directive 5000.35, "Defense Acquisition Regulatory System," March 8, 1978
- (f) DoD Regulation 5220.22-R, "Industrial Security Regulation," January 29, 1979
- (g) DoD Instruction 1000.13, "Identification Cards for Members of the Uniformed Services, their Dependents, and Other Eligible Personnel," July 16, 1979
- (h) DoD Instruction 1000.1, "Identity Cards Required by Geneva Conventions," January 30, 1974
- (i) DoD Directive 4000.6, "Policy on Logistic Support of United States Non-governmental, Nonmilitary Agencies and Individuals in Overseas Military Commands," January 23, 1976
- (j) DoD Directive 5154.20, "Per Diem, Travel, and Transportation Allowances for DoD Civilian Personnel," July 28, 1979

DEFINITIONS

1. Engineering and Technical Services
 - a. Advice, instruction, and training in the installation, operation, maintenance, and logistics of weapon systems, equipment, and components used by DoD Components.
 - b. Liaison or advisory service for military users of equipment/systems pertaining to maintenance or other logistics areas.
2. DoD Engineering and Technical Services Specialists. DoD military and civilian personnel technically qualified to provide the services described in 1, above.
3. Contract Engineering and Technical Services. Engineering and technical services performed by DoD contractors. These services consist of:
 - a. Contract Plant Services. Engineering and technical services and technical training provided to DoD personnel by a manufacturer of military weapon systems, equipment, or components. These services are provided in the facilities of the manufacturer by his employees so that specialized skills, knowledge, experience, and technical data concerning the equipment and systems may be acquired by DoD personnel, thus providing them with the technical skills and knowledge to install, maintain, and operate the equipment.
 - b. Contract Field Services. Engineering and technical services provided on-site to DoD personnel by employees of DoD contractors.

ADMINISTRATION

1. The requirements for and the use of contract plant services, contract field services, and DoD engineering and technical services specialists shall be reviewed annually at Military Department or Defense Agency headquarters level to:
 - a. ensure that contractor services are being used properly and are providing adequate services in accordance with the contract
 - b. assess the achievements of military readiness standards for equipment installation, operation, and maintenance
 - c. ensure adequacy of channels of communication between the manufacturer and DoD users of military equipment and systems
 - d. identify requirements related to immediate needs and to the updated Five Year Force Structure
 - e. determine need for any change in policy or procedures
 - f. provide data for annual reports
2. Computation of requirements and programming for engineering and technical services shall be expressed in terms of man-months and in dollar costs.
3. Data required to support budget estimates shall separately identify the requirements for contract engineering and technical services.
4. Management, policy direction, and control over engineering and technical services shall be exercised through the existing management structures of the Office of the Secretary of Defense and DoD Components. However, the Military Departments and Defense Agencies shall assign at the headquarters level a single office with the responsibility and authority for coordination of and cognizance over all DoD and contract engineering and technical services used. This office shall:
 - a. ensure that requirements for DoD and contract engineering and technical services personnel represent valid needs
 - b. coordinate requests for funds and manpower spaces for engineering and technical services to ensure optimum utilization of contractor and in-house effort
 - c. ensure the accuracy of reports submitted in accordance with Section F of this Directive

This responsibility and authority may be redelegated to subordinate commands or activities as deemed necessary to accomplish the above functions.

5. Acquisition of contract engineering and technical services shall conform to the Defense Acquisition Regulation and shall include the requirement that contracts will show man-months and dollar costs for services, or that these services will be included as identifiable line items (showing man-months and dollar costs) for services in end-item acquisition contracts (DoD Directive 5000.35 (reference (e))). Contracts covering these services will define the work to be performed.
6. Contract field service personnel, although under the control of their companies, shall be subject to the administrative and security regulations of the defense location where they work. Arrangements for the security, identification, logistic support, and transportation of contract field service personnel shall conform with the procedures specified below:
 - a. Security Clearances. Security clearances shall be processed in accordance with DoD 5220.22-R (reference (f)) and DoD Components shall be responsible for ensuring that all security requirements are met.
 - b. Identification. Identification for contract field service personnel shall be provided by the standard identification and privilege card, in accordance with reference DoD Instruction 1000.13 (reference (g)). When required, these personnel shall also be provided with the identification credentials specified by the Geneva Conventions in accordance with DoD Instruction 1000.1 (reference (h)).
 - c. Logistic Support. Contract field service personnel performing services at the request or with the concurrence of a DoD Component shall be provided logistic support overseas in accordance with DoD Directive 4000.6 (reference (i)). Contract arrangements shall take into consideration the availability of these services in overseas and U.S. areas.
 - d. Travel and Transportation. The provisions of DoD Directive 5154.20 (reference (j)) shall be used as general guidelines in relation to matters of travel, transportation, and allowances for contract field service personnel. Contract arrangements shall take into consideration any government transportation services provided.

APPENDIX B

TESTING THE LEGALITY OF SERVICES CONTRACTS

THE PELLERZI STANDARD

In October 1967, the General Counsel of the Civil Service Commission, Mr. Leo M. Pellerzi, found certain support service contracts at the Goddard Space Flight Center to be illegal, because they were in effect creating Federal positions for contractor--and not Civil Service--employees. In this finding, Pellerzi set forth a six-point standard for determining whether a Federal contract had created an illegal employer/employee relationship between the Government and contractor employees. Those six points are:

- Performance is on-site.
- Principal tools and equipment are Government-furnished.
- Services are applied directly to integral effort of agencies or organizational subpart in furtherance of assigned function or mission.
- Comparable services, meeting comparable needs, are performed in the same or similar agencies using civil service personnel.
- The need for the type of service provided can reasonably be expected to last beyond one year.
- The inherent nature of the service, or the manner in which it is provided reasonably requires, directly or indirectly, Government direction or supervision of contractor employees in order:
 - to adequately protect the Government's interest, or
 - to retain control of the function involved, or
 - to retain full personal responsibility for the function supported in a duly authorized Federal officer or employee.

¹Civil Service Commission, Opinion of the General Counsel, Legality of Selected Contracts at Goddard Space Flight Center, National Aeronautics and Space Administration, October 17, 1967, p. 40.

According to Pellerzi, any contracts which contain all of these elements, "each to any substantial degree, either in the terms of the contract or in its performance, constitute the procurement of personal services proscribed by personnel laws."²

In 1973, the U.S. District Court for the District of Columbia deemed the Pellerzi Standard the proper test for determining the existence of illegal employment of contractor personnel,³ and in this respect, it was affirmed by the Court of Appeals.⁴ However, there appeared to be considerable disagreement among the Civil Service Commission, the District Court, and the Appellate Court as to the precise manner in which the Pellerzi Standard was to be applied. The sources of this disagreement, and the eventual resolution by the Court of Appeals, are discussed below.

The Civil Service Commission View and Mondello Supplement

Even before the Pellerzi Standard had gained judicial acceptance, the Civil Service Commission had begun to clarify and augment it. In July 1968, after the Pellerzi Standard had created widespread concern about the legality of services contracts in both industry and government, the new CSC General Counsel, Mr. Anthony Mondello, issued a supplement to Pellerzi's opinion.⁵ According to Mondello's supplement, the Pellerzi Standard was not

²Ibid.

³Lodge 1858, American Federation of Government Employees v. Webb, 424 F. Supp 186 (1976), p. 190.

⁴AFGE v. Webb, 580 F.2d 496 (D.C. Cir., 1978), cert. denied, 439 U.S. 927, 99 S. C. 311 (1979).

⁵Civil Service Commission, Supplement to the Opinion of the General Counsel, U.S. Civil Service Commission, on the Legality of Selected Contracts at the Goddard Space Flight Center, July 5, 1968.

to be mechanically applied, with contracts being invalidated simply because they contained several of the standard's elements. Rather, the standard was to be used as a guide for determining whether a contractor's employee was performing a role that was functionally equivalent to that of a Federal employee. The supplement emphasized that the Pellerzi elements were not law unto themselves, but merely indicia of the existence of "supervision" within the meaning of 5 USC 2105(a)(3), the statute which lays out the definition of a Civil Service employee. Thus, the absence of any one or a number of Pellerzi elements would not mean that the contract was legal, and the mere presence of an element--even the key sixth element of supervision--would not mean that the contract was illegal, unless of course, the supervision involved was substantial enough to create Federal employment within the meaning of "supervision" in the statute.⁶

The supplement also addressed the question of how much supervision was needed to create such a relationship. Ordinary supervision, the opinion implied, was insufficient, but close and continuous supervision, even in contracts lasting only a month or two, was clearly enough. Beyond these extremes, however, the opinion did not venture.

Clearly, the opinion implied that the sixth element of the Pellerzi Standard was entitled to far greater weight than the other five. However, it stopped short of saying that the presence of the sixth element to a substantial degree could outweigh the absence of the other five, or that the absence of the sixth element could outweigh the presence of the other five. That issue was resolved by the Commission when it considered the case of Lodge 1858, AFGE vs. Webb, Administrator of NASA.

⁶Ibid., p. 2.

AFGE v. Webb

In 1964, the Federal Employees Union challenged a NASA Reduction-in-Force (RIF) at the Marshall Space Flight Center. The Union alleged that NASA was employing contractor personnel, for all intents and purposes, as civil servants, and that such employment made its RIF illegal. NASA contended that the contractor personnel were not tantamount to Federal employees, and that there was no question about the legitimacy of the RIF. Thus, the key issue was whether the contracts were legal or illegal under the Pellerzi Standard.

In 1974, the Civil Service Commission decided that all of the contracts at issue were legal.⁷ None involved enough supervision, in its opinion, to meet the critical sixth element of the Pellerzi Standard. Requiring all six elements to be present, the Commission upheld the legality of contracts which had all of the Pellerzi elements, to a substantial degree, but the sixth. This position was, in substance, consistent with the Pellerzi opinion as amplified in the Mondello supplement, but was nevertheless unpersuasive in the U.S. District Court.

In 1976, the District Court reversed the Commission. Judge Waddy, interpreting the words of Pellerzi's sixth element more literally than the Commission, and omitting the gloss of the Mondello supplement, found that supervision was indeed present in at least 22 of the 32 contested contracts. The proper test for supervision, according to the trial judge, was "one which necessitates a showing that the inherent nature (emphasis added) of the services or the manner in which they are provided reasonably requires, directly or indirectly, Federal direction or supervision."⁸ But the appellate court disagreed.

⁷ AFGE v. Webb, 424 F. Supp. 186 (D.C. Cir., 1976), p. 192.

⁸ Ibid., p. 205.

In focusing on what the "nature" of a contracted service "reasonably requires" in the way of supervision, the trial court was found to be in error.⁹ The real issue was whether the actual amount of governmental (emphasis added) supervision was sufficient to create employer/employee relationships between the government and the contractor employees.¹⁰ To resolve this issue, the appellate court decided to apply the same test that the Supreme Court had devised for determining the existence of employer/employee relationships under the Federal Employers' Liability Act.¹¹ According to that test, where a contractor is responsible for day-to-day supervision of the physical conduct in the job performed by his employees, there is no employer/employee relationship involving the Federal Government.¹² Therefore, the NASA contracts, which all exhibited contractor supervision of day-to-day conduct, were all legal.

Thus, the court upheld the legality of contracts in which all Pellerzi elements were present but the sixth. In addition, it suggested that the presence of the sixth element to a substantial degree could render a contract illegal, even if no other elements were present.¹³ Clearly then, all of the Pellerzi elements are not entitled to equal weight. The sixth, apparently, can outweigh all the rest.

⁹AFGE v. Webb, 481 F. Supp. 496 (D.C. Cir., 1978), p. 506.

¹⁰Ibid., p. 507.

¹¹Kelley v. Southern Pacific Co., 419 U.S. 318 (1974).

¹²Ibid., p. 325.

¹³AFGE v. Webb, 580 F.2d 496 (D.C. Cir., 1978), p. 504.

The Legality of Engineering and Technical Services Contracts

There is language in the AFGE opinion of the Court of Appeals which supports an additional argument in favor of the legality of services contracts involving technicians, engineers, and other professional personnel. In analyzing the NASA contracts for engineering, scientific, and technical assistance, the court pointed approvingly to a 1913 Supreme Court decision which held that no employer/employee relationship exists with a contractor employee if the contractor employee is "capable of independent action to be judged by its results."¹⁴ The court noted, with regard to the NASA contracts, that technicians, scientists, engineers, and other highly skilled or professional personnel are fully capable of exercising independent judgment in performing their services, and that those performing the NASA contracts were fully expected to use that judgment on the job.¹⁵ Thus, it would appear that, unless engineering and technical personnel are used in an unusual manner that deprives them of the opportunity to exercise their independent professional judgment, their services will not involve an illegal degree of governmental supervision.

¹⁴Chicago R. I. & P. R. Co. v. Bond, 240 U.S. 449 (1916), p. 456.

¹⁵AFGE v. Webb, 580 F.2d 496 (D.C. Cir., 1978), p. 506.

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20. ABSTRACT (Continue on reverse side if necessary and identify by block number) This study recommends revisions to DoD policy on the use of civilians, both in-house and contractor, for engineering and technical services. The DoD operat- ing forces rely heavily upon civilians to provide advice, instruction, and training of military personnel in the installation, operation, and maintenance of weapon systems and equipment. Civilians also provide liaison between users and equipment manufacturers. OSD has questioned current policy because continuing reliance on these civilians means that maintenance skills are not being		

20. (Cont'd)

cont → successfully transferred from producers to users. Hence, materiel readiness of key weapon systems could be degraded if those civilians choose not to continue doing their jobs in wartime.

→ The DoD policy should recognize organic self-sufficiency in maintenance as a goal, but without any arbitrary time limit on the use of contractor technical assistance whenever needed to transfer skills from producers to users. It should eliminate any distinction between contractor field service and field service representative personnel.

→ OSD should require the Military Departments to submit (on a one-time basis) summaries of their latest reviews of technical assistance usage to uncover shortcomings in compliance with current policy.

→ OSD should actively support in-house effort to solve the problem of civilian technician technician availability in wartime.